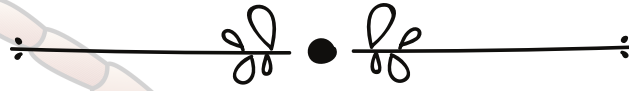


BIOHACK NOTES



COCKROACH

MORPHOLOGY & ANATOMY

- BASED ON ACTIVE RECALL AND SPACED REPETITION
- TARGET 360/360 IN NEET BIOLOGY & 100/100 IN BOARDS!



PARTH GOYAL





• INTRODUCTION

- 1) Cockroaches are _____ or _____ in colour.
- 2) Class -
- 3) _____, _____, _____ coloured cockroaches are also reported in tropical/subtropical regions.
- 4) The size ranges from _____ inches to _____ inches.
- 5) They are diurnal/nocturnal carnivores/omnivores
- 6) Cockroaches are serious pests and vectors of many diseases. T/F

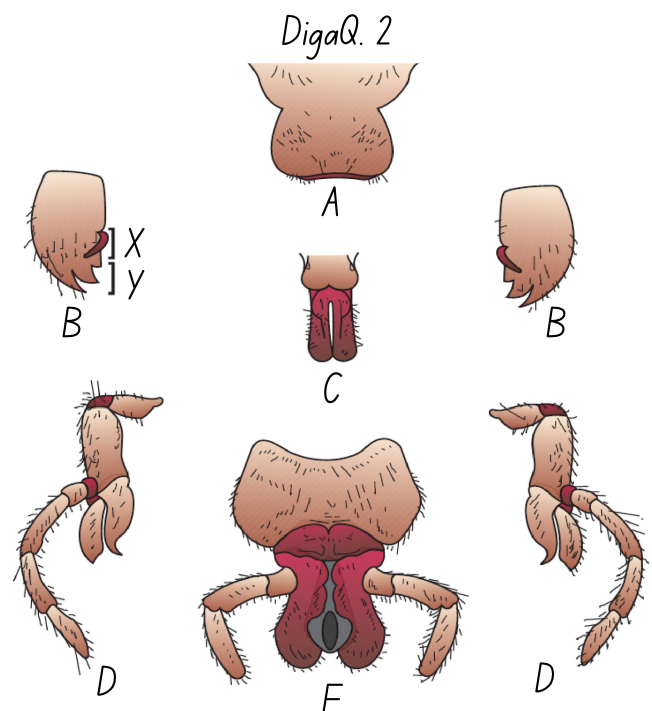
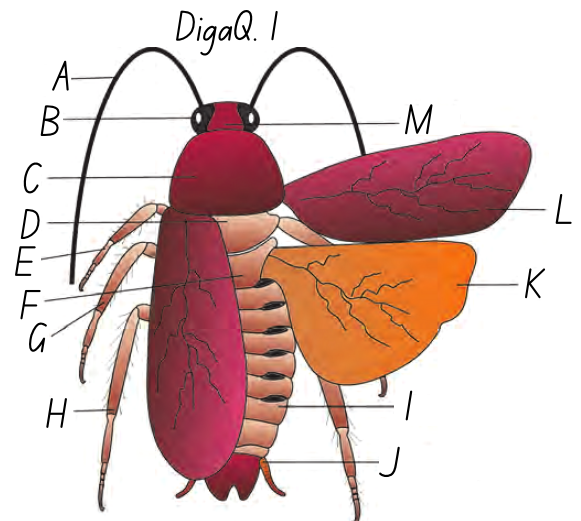


• MORPHOLOGY

- 7) Common species of cockroach is _____
- 8) They are _____-_____ cm long.
- 9) The body is divisible into 3 regions _____, _____, _____
- 10) The entire body of the cockroach is covered with _____ skeleton.

11) Hardened plates forming exoskeleton are _____ (NEET)

- 12) _____ are found dorsally and _____ are found ventrally.
- 13) Tergites and sternites are joined to each other by thin/thick and flexible _____ also called _____
- 14) Shape of head of cockroach is _____
- 15) Head is formed by fusion of _____ no of segments.
- 16) The neck is not flexible. T/F
- 17) Head capsule bears a pair of _____
- 18) A pair of thread-like antennae arise from membranous sockets lying behind the eyes. T/F
- 19) Antennae help in (i)
- 20) _____ type of mouth parts
- 21) Upper lip is called _____
- 22) Lower lip is called _____
- 23) Mouthparts consist of (4)
- 24) Hypopharynx also called _____
- 25) Thorax consists of 3 parts. Name them.
- 26) Neck is a short extension of _____
- 27) The first pair of wings arise from _____



28) Second pair from _____

29) Forewings are called _____. Features - (2)

30) Hindwings features (2)

31) _____ wings are used in flight.

32) Two pairs of wings are present at _____ and _____ segments.

33) Abdomen of cockroach is divided into _____ segments.

34) In females, _____th is a boat shaped sternum. (NEET)

35) Genital pouch is formed by _____, _____, _____ sternum.

36) Anterior part of genital pouch contains _____, _____, _____

37) In males, genital pouch lies at _____ end of abdomen bounded dorsally by _____ and _____ terga and ventrally by _____ sternum.

38) Male genital pouch consist of (3)

39) Anal styles are absent in males. T/F (NEET)

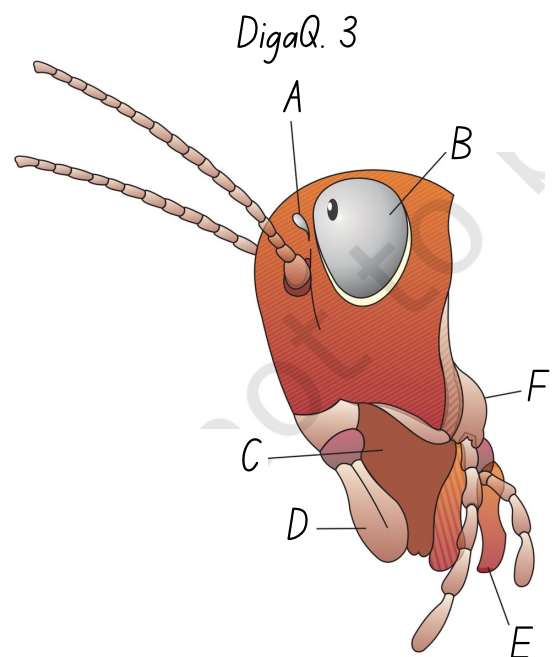
40) Anal cerci are absent in males. T/F

41) Jointed filamentous structure are _____

42) _____ segment of cockroach bear anal cerci.

43) Anal style is also called _____

44) Genital pouch consist of (2)



• ANATOMY

• DIGESTIVE SYSTEM

45) Alimentary canal is divided into 3 regions. Name them.

46) The mouth opens into a short tubular oesophagus. T/F

47) Oesophagus opens into _____ which is used for _____

48) Crop is followed by _____ or _____

49) Gizzard has outer layer of thick/thin circular/longitudinal muscles and thick/thin inner cuticle forming ____ no of highly chitinous plates called _____

50) _____ help in grinding food. (NEET)

51) No of gastric caecae present in cockroach are -

52) ____-____ blind tubules called _____ or _____ caecae are present at junction of _____ and _____



53) Hepatic caecae fxn (l)

54) Malpighian tubules are _____ in no.

55) Between _____ and _____, a _____ coloured thick/thin filamentous _____ is present.

56) The midgut is broader than hindgut. T/F

57) Hindgut is differentiated into _____, _____, _____

58) Describe the path of flow of food from mouth to anus.

59) A pair of _____ present near crop.

• CIRCULATORY & RESPIRATORY SYSTEM

60) Blood vascular system of cockroach is open/closed type.

61) Blood vessels open into space called _____

62) Hemolymph consist of _____ and _____

63) Heart is differentiated into _____ shaped chambers.

With _____ on either side.

64) Blood from _____ enter heart through _____

65) Blood is pumped posteriorly to sinus again. T/F

66) The respiratory system consist of a network of _____

67) Number of spiracles _____

68) Exchange of gases at tracheoles take place by _____

69) Spiracles are regulated/not regulated.

• EXCRETORY & NERVOUS SYSTEM

70) Excretion by 4 things -

71) Each tubule is lined by _____ and _____ cells

72) Malpighian tubule absorb _____ and convert them into _____ (NEET)

73) Cockroach is ureotelic/uricotelic.

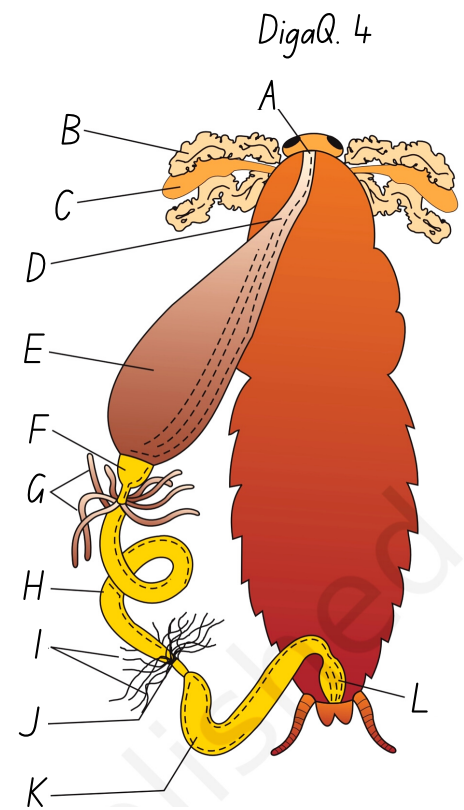
74) Ganglia are joined by _____ on dorsal/ventral side.

75) No. of ganglia in abdomen -

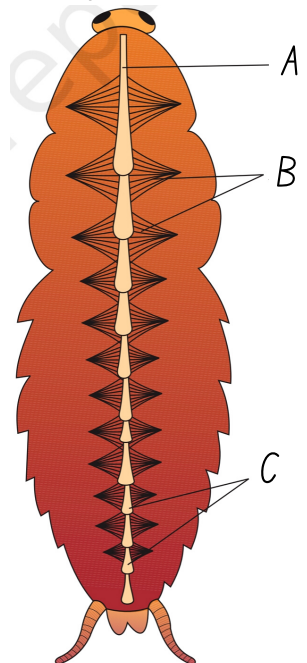
76) No. of ganglia in thorax -

77) The brain is represented by _____ ganglion.

78) Supraesophageal ganglion supplies nerves to _____ and _____



DigaQ. 5



79) The compound eyes are situated in the ventral/dorsal surface of head.

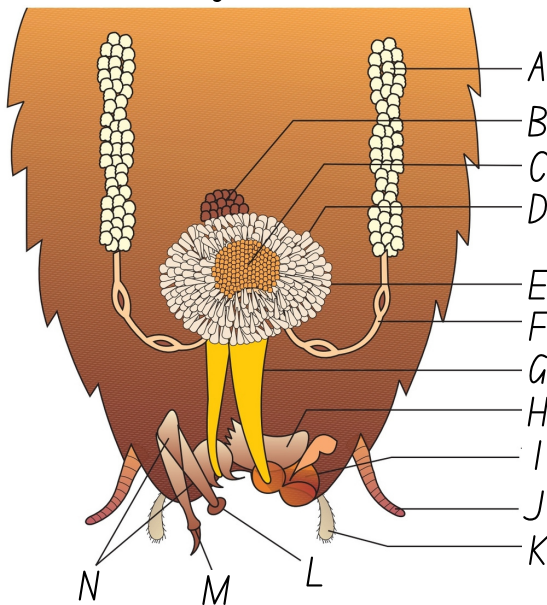
80) Name 5 sense organs of cockroach.

81) Each eye consists of _____ hexagonal ommatidia.

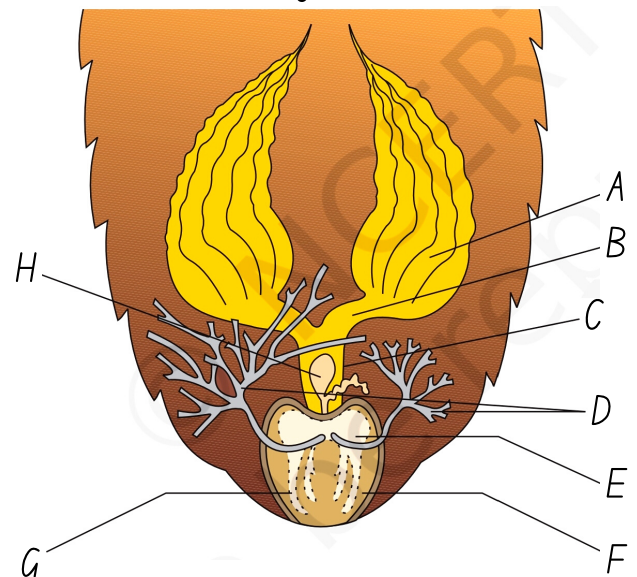
82) Cockroach have _____ type of vision in which there is more/less sensitivity and more/less resolution.

• REPRODUCTIVE SYSTEM

DigaQ. 6



DigaQ. 7



83) Testes lie on medial/lateral side between the _____ abdominal segments.

84) Name the structures that sperm passes through its journey from testes to outside.

85) Male gonopore is situated ventral/dorsal to anus.

86) A characteristic _____ shaped gland is present in the ____th - ____th abdominal segments which function as an accessory reproductive gland.

87) The external genitalia are represented by _____ or _____

88) Phallomere are made of _____

89) Phallomere are symmetric/asymmetric structures.

90) Sperms are glued together in the form of bundles called _____

91) The female reproductive system lies laterally in _____ abdominal segments.

92) Oviduct unite to form _____ which opens into _____

93) Spermatheca are present in females. T/F

94) They are present in segment _____ and opens into _____

95) The fertilized ovule is capsuled in _____

96) Ootheca color (2) and length is



PARTH GOYAL

- 97) Ootheca are dropped or glued to a suitable surface, usually a crack with _____ and _____
- 98) On average, females produce _____ ootheca each containing _____ eggs.
- 99) Function of collateral glands.
- 100) Development of *P. americana* is _____, meaning -
- 101) The nymphs look very much like adults. T/F
- 102) The nymph grows by moulting _____ times.
- 103) The next to last nymphal stage have _____
- 104) Cockroach don't transmit bacterial diseases. T/F
-

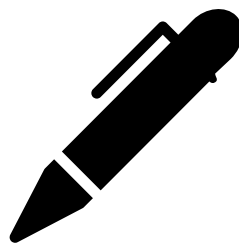


COCKROACH

MORPHOLOGY & ANATOMY



PARTH GOYAL



ANSWERS



• ANSWERS

- 1) Brown or black
- 2) Insecta
- 3) Bright yellow, red and green (Trick - Traffic signal have all these colours)
- 4) $\frac{1}{4}$ inches to 3 inches (0.6-7.6 cm)
- 5) Nocturnal omnivores
- 6) True

• MORPHOLOGY

- 7) *Periplaneta americana*
- 8) 3.4-5.3 cm
- 9) Head, thorax and abdomen
- 10) Hard chitinous
- 11) Sclerites
- 12) Tergites, sternites
- 13) Thin, arthrodial membrane, articular membrane
- 14) Triangular
- 15) 6
- 16) F
- 17) Compound eye
- 18) F, lying in front of eye
- 19) Monitoring the environment
- 20) Biting and chewing
- 21) Labrum
- 22) Labium
- 23) Labrum, labium, mandible, maxilla
- 24) Tongue
- 25) Prothorax, mesothorax and metathorax
- 26) Prothorax
- 27) Mesothorax
- 28) Metathorax
- 29) Tegmina, Features - opaque dark and leathery
- 30) Transparent, membranous

- 31) Hind wings
- 32) 2nd and 3rd
- 33) 10
- 34) 7th
- 35) 7th, 8th, 9th
- 36) Female gonopore, spermathecal pores and collateral glands
- 37) Hind, 9th, 10th, 9th
- 38) Dorsal anus, ventral male genital pore and gonapophysis
- 39) F
- 40) F
- 41) Anal cerci
- 42) 10th
- 43) Caudal style
- 44) Genital chamber, vestibulum

• ANATOMY

Digestive system

- 45) Foregut, midgut and hindgut
- 46) False, it opens into short tubular pharynx
- 47) Crop, storing of food
- 48) Gizzard or proventriculus
- 49) Thick, circular, thick, 6, teeth
- 50) Gizzard
- 51) 6-8
- 52) 6-8. Hepatic or gastric, foregut and midgut
- 53) Secrete digestive juice
- 54) 100-150
- 55) Midgut and hindgut, yellow, thin, malpighian tubules
- 56) F
- 57) Ileum, colon and rectum



- 58) Mouth - Pharynx - Oesophagus - Crop - Gizzard - Midgut - Ileum - Colon - Rectum
59) Salivary glands

Circulatory & Respiratory system

- 60) Open
61) Haemocoel
62) Colourless plasma and haemocytes
63) Funnel, ostia
64) Sinuses, ostia
65) False, anteriorly
66) Trachea
67) 20 (10 pairs)
68) Diffusion
69) Regulated

Excretory & Nervous system

- 70) Malpighian tubules, nephrocytes, fat body, urecose glands
71) Glandular and ciliated
72) Ammonia, uric acid
73) Uricotelic
74) Paired longitudinal connectives, ventral
75) 6
76) 3
77) Supra-oesophageal ganglion
78) Antennae and compound eyes
79) Dorsal
80) Antennae, eyes, maxillary palps, labial palps, anal cerci
81) 2000

- 82) Mosaic, more sensitivity and less resolution

Reproductive system

- 83) Lateral, 4-6th
84) Testis - vas deferens - seminal vesicle - ejaculatory duct - male gonopore
85) Ventral
86) Mushroom, 6-7

- 87) Male gonapophysis or phallomere
88) Chitin
89) Asymmetric
90) Spermatophores
91) 2nd-6th
92) Single median oviduct/vagina, genital chamber
93) T
94) 6, genital chamber
95) Ootheca
96) Dark reddish or blackish brown, 8mm long
97) High relative humidity and food source
98) 9-10, 14-16
99) Secrete the hard egg case or ootheca
100) Paurometabolous, meaning development through nymphal stages
101) T
102) 13
103) Wing pads
104) F

• DigaQs

DigaQ. 1

A - Filiform antennae

B - Compound eye

C - Pronotum

D - Mesothorax

E - Prothoracic leg

F - Metathorax

G - Mesothoracic leg

H - Metathoracic leg

I - Abdomen

J - Anal cerci

K - Hind wing

L - Tegmina

M - Head

DigaQ. 2

A - Labrum

B - Mandible

C - Hypopharynx

D - Maxilla

E - Labium

X - Grinding region

Y - Incising region



PARTH GOYAL

DigaQ. 3

| | |
|------------------|-------------|
| A - Ocellus | D - Labrum |
| B - Compound eye | E - Labium |
| C - Mandible | F - Maxilla |

DigaQ. 4

| | |
|------------------------|------------------------|
| A - Pharynx | G - Hepatic caeca |
| B - Salivary gland | H - Mesenteron/midgut |
| C - Salivary reservoir | I - Malpighian tubules |
| D - Oesophagus | J - Ileum |
| E - Crop | K - Colon |
| F - Gizzard | L - Rectum |

DigaQ. 5

A - Anterior aorta
B - Alary muscles
C - Chambers of heart

DigaQ. 6

A - Testis
B - Phallic gland
C - Small tubules
D - Long tubules
E - Seminal vesicle
F - Vas deferens
G - Ejaculatory duct
H - Right phallomere
I - Ventral phallomere
J - Anal cercus
K - Caudal style
L - Pseudopenis
M - Titillator
N - Left phallomere

DigaQ. 7

A - Ovary
B - Oviduct
C - Common oviduct
or vagina
D - Collateral glands
E - Genital chamber
F - Vestibulum
G - Genital pouch
H - gonapophyses
I - Spermatheca



SCAN AND DONATE US SO THAT WE
CAN CREATE MORE SUCH QUALITY
CONTENT FOR YOU!

JUST ₹10-20 WILL BE APPRECIABLE! :)

NEET ASPIRANTS AFTER
REALISING THAT BIOHACKS ARE
BETTER THAN ANY MATERIAL OF
NEET GERNE, EVEN PAID



PARTH GOYAL